TM 11-5825-203-10

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL

RECEIVER GROUP OA-1451/PRR

HEADQUARTERS, DEPARTMENT OF THE ARMY
9 JANUARY 1961

WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT

Be careful when connecting cables
or working inside the receiver.

DON'T TAKE CHANCES!

TECHNICAL MANUAL
No. 11-5825-203-10

HEADQUARTERS,
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WASHINGTON 25, D. C., *9 January 1961*

RECEIVER GROUP OA-1451/PRR

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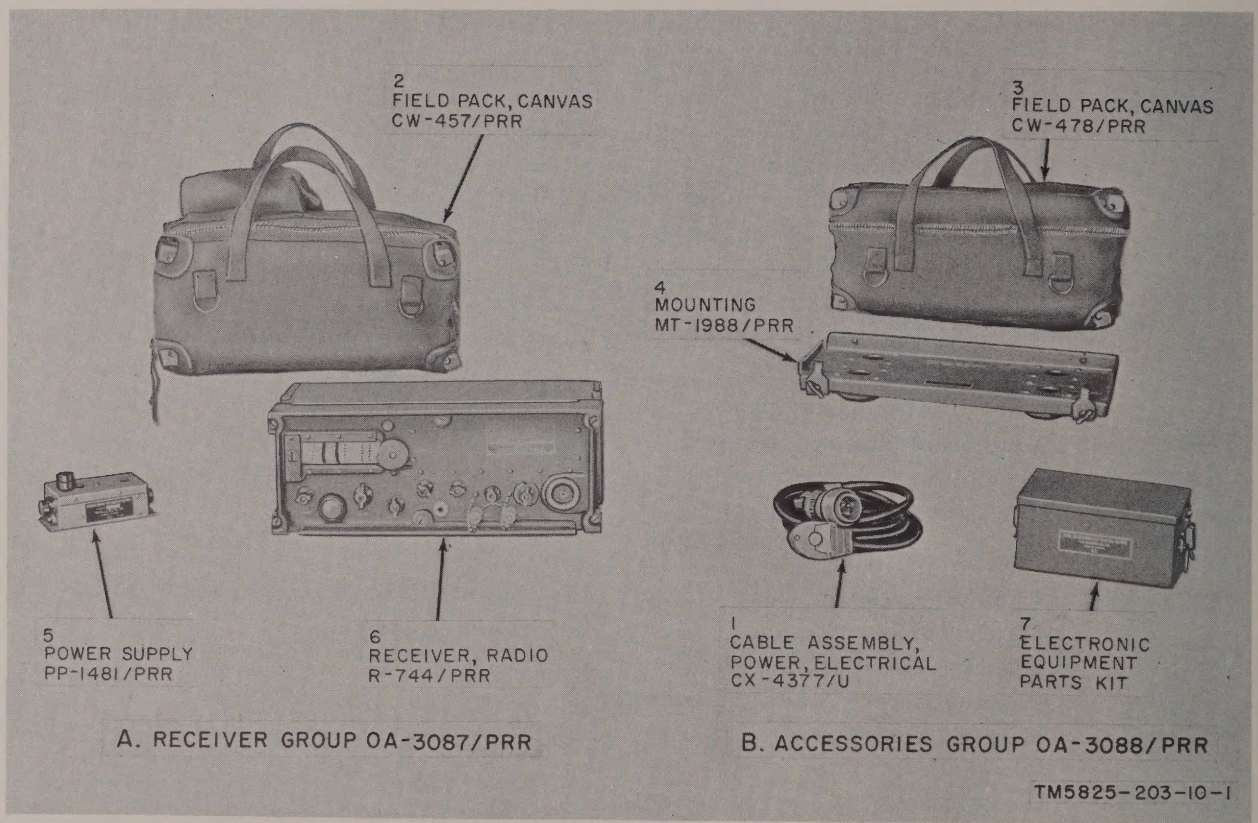

Figure 1. Receiver Group OA–1451/PRR.

CHAPTER 1
INTRODUCTION

Section I. GENERAL

1. Scope

This manual describes Receiver Group OA–1451/PRR (fig. 1) and covers its operation and operator's maintenance. It contains instructions for inspecting and cleaning the equipment and for replacement of parts available to first echelon maintenance.

2. Forms and Records

a. Unsatisfactory Equipment Reports. Fill out and forward DA Form 468 (Unsatisfactory Equipment Report) to the Commanding Officer, U. S. Army Signal Materiel Support Agency, ATTN: SIGMS–ML, Fort Monmouth, N. J., as prescribed in AR 700–38.

b. Report of Damaged or Improper Shipment. Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700–58 (Army).

c. Preventive Maintenance Forms. Prepare DA Form 11–238 (fig. 5) (Maintenance Check List for Signal Equipment (Sound Equipment, Radio, Direction Finding, Radar, Carrier, Radiosonde and Television)) in accordance with instructions on the form.

d. Comments on Manual. Forward all other comments on this publication direct to the Commanding Officer, U. S. Army Signal Materiel Support Agency, ATTN: SIGMS–PA2d, Fort Monmouth, N. J.

Section II. DESCRIPTION AND DATA

3. Purpose and Use

Receiver Group OA–1451/PRR is a vehicular or portable radio receiver which can be used for intercept or direction finding. The receiver provides reception of continuous-wave (cw), amplitude-modulated (am.), and frequency-modulated (fm) signals.

4. Technical Characteristics

a. Radio Receiver R–744/PRR.

Frequency range ..... 20 mc to 100 mc in one continuous band.

Types of signals received ..... Cw, am., and fm.

Method of calibration Built-in crystal calibrator.

Calibration points .... Every 2 mc.

Power source:

Portable use ..... Batteries.

Vehicular use ..... 24-v vehicular electrical system.

b. Power Supply PP–1481/PRR.

Power input ..... 150 ma at 24 v.

Power output:

Filament ..... 500 ma at 1.5 v.

Plate ..... 17.5 ma at 45 v.

5. Components of Receiver Group OA–1451/PRR

a. Components. The components of Receiver Group OA–1451/PRR (fig. 1) are listed in the following chart:

Quantity	Item	Height (in.)	Depth (in.)	Width (in.)	Unit weight (lb)
1	Receiver Group OA–3087/PRR including:				
	1 Field Pack, Canvas CW–457/PRR	6	7½	15½	1
	1 Receiver, Radio R–744/PRR	5½	6½	14½	15
	1 Power Supply PP–1481/PRR	2 7/32	2⅝	4 13/16	1
1	Accessories Group OA–3088/PRR including:				
	1 Mounting MT–1988/PRR	2 1/16	6⅛	14 27/32	3
	1 Field Pack, Canvas CW–458/PRR	5½	6½	14½	1
	1 Electronic equipment parts kit	3⅜	4⅞	6½	1.6
	1 Cable Assembly, Power, Electrical CX–4377/U			101	1.2
1 set	Running spares and accessories (*b* below)				

b. Running Spares. The following running spares and accessories are included in the electronic equipment parts kit (fig. 2).

Quantity	Item
1	Case, Accessories CY–2331/PRR
1	Electron tube, 6611
1	Electron tube, 6612, grounded
1	Electron tube, 6612, ungrounded
3	Lamp, incandescent, GE No. 331
3	Fuse, ¼-ampere, MIL-type F02GR250A
1	Transistor, 2N297A
1	U208, power amplifier
1	U207, bfo
1	U206, calibration oscillator
1	U205, fm detector
1	U204, fourth if. amplifier and am. detector
1	U201/U202/U203, standard if. amplifier
3	Allen wrenches, one each #10, #6, #4
1	Screwdriver
1	Test cable

6. Nomenclature and Common Names

A list of the nomenclature assignments for the components of Receiver Group OA–1451/PRR is given below. A common name is indicated after each item.

Nomenclature	Common name
Receiver Group OA–1451/PRR ..	Receiver group
Receiver, Radio R–744/PRR	Receiver
Power Supply PP–1481/PRR	Power supply
Mounting MT–1988/PRR	Mounting base
Cable Assembly, Power, Electrical CX–4377/U.	Power cable
Electronic equipment parts kit ..	Spare parts kit
Field Pack, Canvas CW–457/PRR.	Receiver field pack
Field Pack, Canvas CW–458/PRR.	Accessory field pack

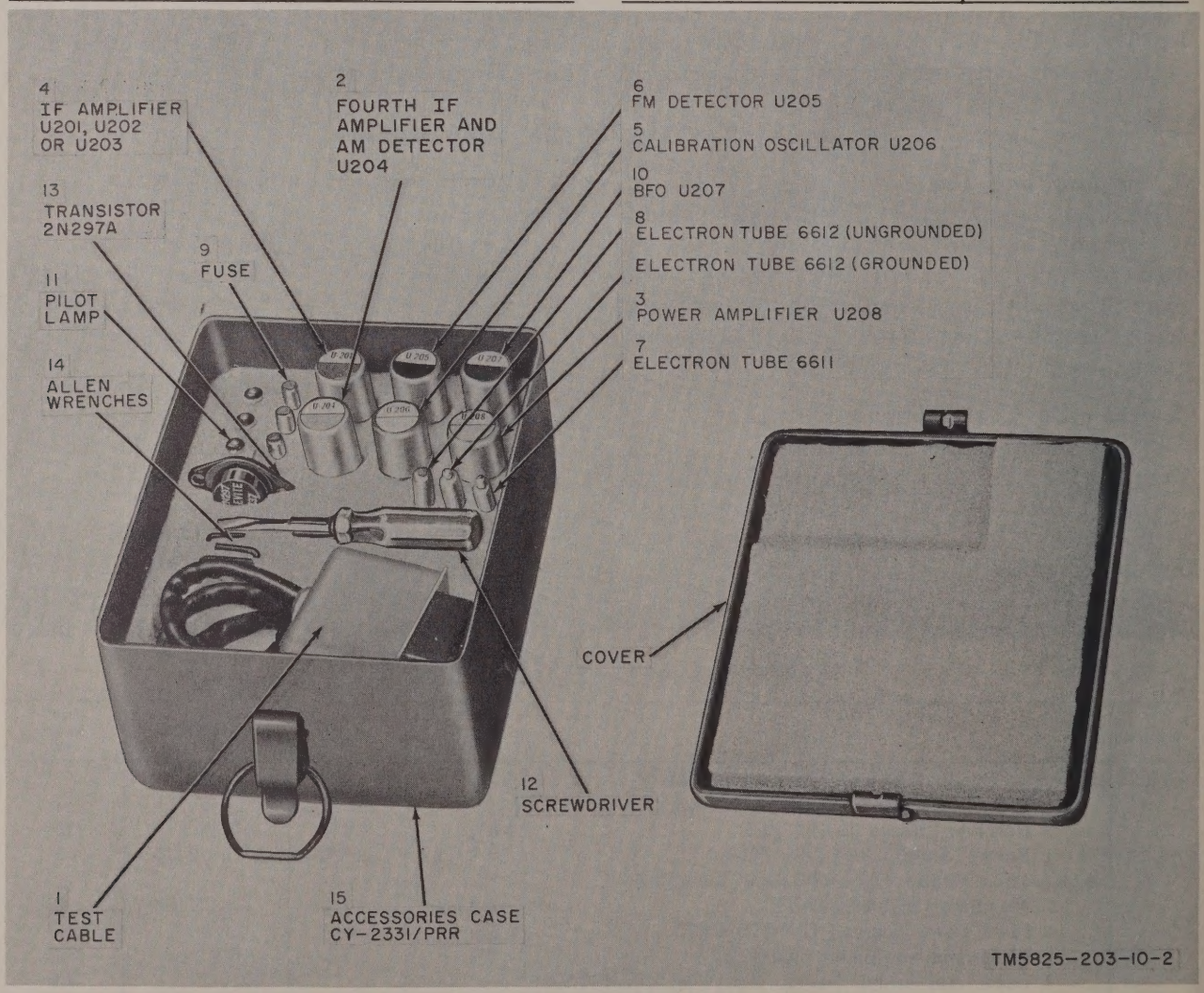

Figure 2. Electronic equipment parts kit.

7. Description of Receiver Group

The receiver group (fig. 1) includes a radio receiver, a power supply (contained within the receiver cover assembly), a mounting base upon which the receiver is mounted in vehicular installations, and several minor components. All the components are described in paragraphs 8 through 11.

8. Receiver, Radio R–744/PRR (fig. 3)

The receiver is housed in the cover assembly (case). All operating controls and connectors are located on the front panel. The cover assembly (fig. 3) contains compartments for the batteries and for Power Supply PP–1481/PRR. Access panels, at each end of the cover assembly, can be reached by loosening the two thumb-locked fasteners.

9. Power Supply PP–1481/PRR (fig. 7)

Power Supply PP–1481/PRR is a compact, transistorized unit secured by captive screws in a compartment in the rear of the receiver cover assembly. The power supply is connected to the receiver through connectors in the cover assembly. The power supply operates from a 24-volt vehicular electrical system.

10. Mounting MT–1988/PRR

Mounting MT–1988/PRR (fig. 3) is a shock-mounted, aluminum frame designed to mount the receiver for vehicular operation. The receiver is fastened to the mounting base by two sets of screw-tightened clamps and guide pins located at the front and rear of the mounting base.

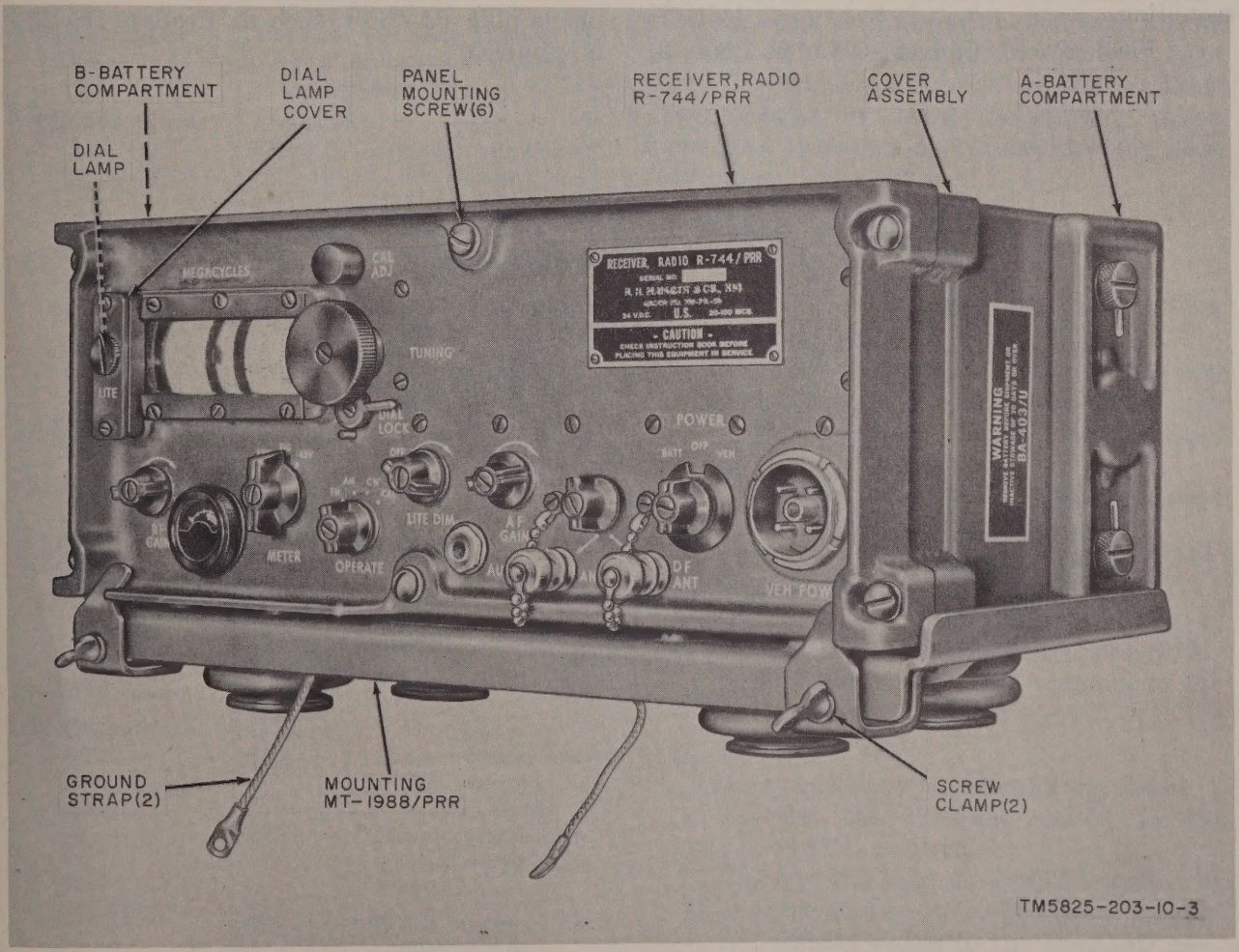

Figure 3. Receiver, Radio R–744/PRR, installed on Mounting MT–1988/PRR.

11. Description of Minor Components (fig. 1)

a. Cable, Assembly, Power, Electrical CX–4377/U, approximately 8 feet long, is used in vehicular installations to connect the receiver to the vehicle electrical system.

b. The electrical equipment parts kit (fig. 2) consists of Case, Accessories CY–2331/PRR which contains the receiver spare parts (para 5*b*), the test cable, and the tools for the receiver group.

c. An 18-inch test cable is supplied with the receiver group to permit the receiver to operate when it is withdrawn from the cover assembly for repairs or alignment.

d. Field Pack, Canvas CW–457/PRR is divided into two compartments which hold a headset and the receiver. The zippered field pack is equipped with luggage-type handle straps and a set of D-rings for packboard mounting.

e. Field Pack, Canvas CW–458/PRR is similar in construction to the receiver field pack, but arranged to contain the mounting base, the spare parts, the spare batteries, and the power cable.

12. Additional Equipment Required

The following equipment is not supplied as part of the receiver group but is required for its use.

a. Battery BA–403/U. Battery BA–403/U supplies filament voltage for portable operation.

b. Battery BA–418/U. Battery BA–418/U supplies plate voltage for portable operation.

c. Vehicular Electrical System. A 24-volt direct current (dc) source is required for use with the power supply during vehicular operation.

d. Vhf Antenna. A whip-type antenna is required for intercept operation in either mobile or portable operation.

e. Headset. A 600-ohm headset with a telephone plug PJ–055B, such as Headset HS–33, is required.

CHAPTER 2

OPERATING INSTRUCTIONS

13. Controls and Indicators
(fig. 4)

The following chart lists the operating controls and indicators and their functions:

Control or indicator	Function
POWER switch	*Sw position* — *Action* BATT — Receiver operates from internal batteries. OFF — Turns receiver off. VEH — Receiver operates from vehicular electrical system.
LITE (dial lamp)....	Illuminates the MEGACYCLES dial.
LITE DIM control ..	Controls illumination of MEGACYCLES dial.
Antenna selector switch.	Connects the whip antenna or the direction-finder antenna to the receiver input.
OPERATE switch	*Sw position* — *Action* FM — Permits reception of fm signals. AM — Permits reception of am. signals. CW — Permits reception of cw signals. CAL — Provides calibration signals for check or adjustment of the MEGACYCLES dial.
MEGACYCLES dial.	Indicates frequency to which receiver is tuned.
TUNING control	Tunes receiver to desired frequency.
DIAL LOCK	Locks TUNING control.
CAL ADJ control	Adjusts position of tuning indicator to calibrate the MEGACYCLES dial.
RF GAIN control	Controls sensitivity of the receiver.
AF GAIN control	Controls volume to the headset.
METER switch	*Sw position* — *Action* SIG — Meter indicates relative strength of received signal. 1.5V — Meter measures filament supply voltage. 45V — Meter measures plate supply voltage.
Meter	Indicates voltage determined by setting of METER switch.
VEH POWER receptacle.	Connector for vehicular power source.
AUDIO jack	Connector for headset.
ANT connector	Connector for whip antenna.
DF ANT connector.	Connector for direction-finder antenna.

14. Types of Operation

The receiver group may be operated as a line-of-sight, very high frequency (vhf) radio direction finder when used in conjunction with a direction-finder, loop-type antenna or as an intercept receiver to analyze or monitor transmissions when used in conjunction with a whip antenna. The receiver can be operated from either a vehicular electrical system or from internal batteries; after the starting procedures, the operating procedures are the same with either power source.

15. Starting Procedure

a. Preliminary.

(1) Prior to operation, set the POWER switch to OFF.

(2) Check to see that the internal A- and B-batteries are in place inside the receiver case. If necessary, install these batteries (para 23*b*).

(3) Connect a suitable 600-ohm headset to the AUDIO receptacle.

(4) Be sure that the whip antenna is connected to the ANT connector.

(5) If the receiver is to be operated as part of a direction finder, attach the appropriate loop-type antenna to the DF ANT connector.

b. Voltage Check.

(1) *Operation from internal batteries.*

(a) Set the POWER switch to the BATT position.

(b) Set and hold the METER switch in the 45V position. The meter pointer should swing to the B GOOD portion of the meter scale.

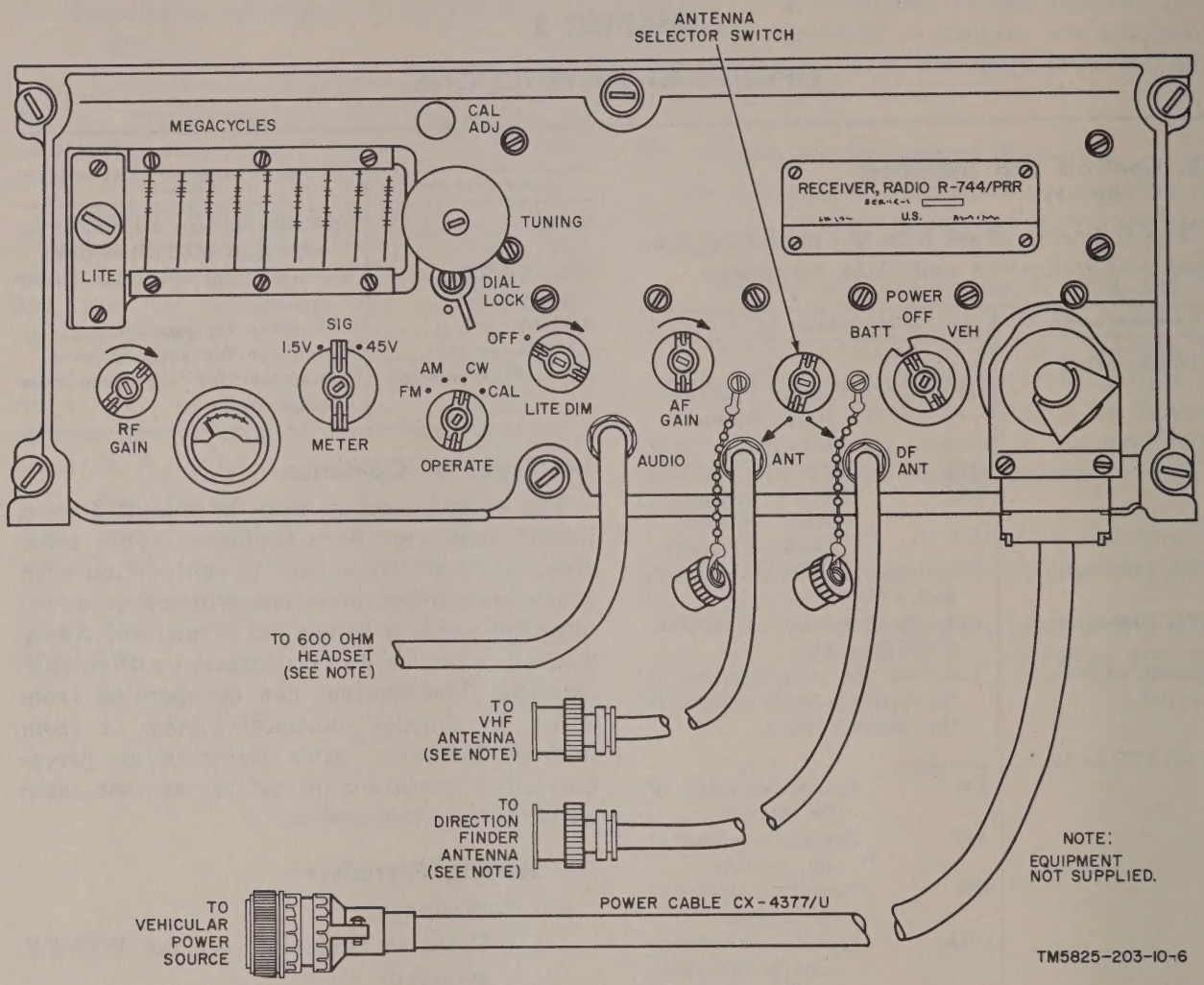

Figure 4. Receiver, Radio R–744/PRR, operating controls.

(c) Set and hold the METER switch in the 1.5V position. The meter pointer should swing to the A GOOD portion of the meter scale.

(d) If either battery fails to provide a satisfactory reading, replace it (para 23*b*).

(2) *Operation from vehicular electrical system.*

(a) Set the POWER switch to the VEH position.

(b) Set and hold the METER switch in the 45V position. The meter should read B GOOD.

(c) Set and hold the METER switch in the 1.5V position. The meter should read A GOOD.

(d) If satisfactory readings are not obtained, set the POWER switch to the BATT position and operate the receiver from the internal batteries until the unsatisfactory condition is remedied.

c. Calibration. Check the receiver calibration prior to each operating period; then proceed as follows:

(1) Set the POWER switch to either BATT or VEH, for either internal battery or vehicle battery operation, respectively. Adjust the LITE DIM control for satisfactory dial illumination.

(2) Set the OPERATE switch to the CAL position.

(3) Adjust the RF GAIN and the AF GAIN controls so that a moderate

amount of noise is heard in the headset.

(4) Unlock the DIAL LOCK.

(5) Set the TUNING control to the calibration checkpoint nearest the frequency of interest.

Note. The calibration checkpoints are located every 2 megacycles (mc) on the MEGACYCLES dial, starting at 20 mc. For example, if the receiver is to be operated at 68.8 mc, the nearest calibration point is 68.0 mc; for receiver operation at 93.4 mc, the nearest calibration point is 94.0. mc.

(6) Carefully adjust the TUNING control for zero beat in the headset.

(7) Adjust the CAL ADJ control until the cursor is properly aligned with the checkpoint on the MEGACYCLES dial.

d. Sensitivity Adjustment. For am. or cw reception, adjust the receiver sensitivity to maximum, as follows:

(1) Set the POWER switch to either BATT or VEH, as determined by the installation.

(2) Set the antenna selector switch to ANT.

(3) Set the OPERATE switch to CW.

(4) Turn the AF GAIN control fully to the right, and then slightly to the left.

(5) Turn the RF GAIN control fully to the left and then to the right to the point at which the front panel meter shows a slight deflection.

(6) Turn the RF GAIN control slightly counterclockwise from this point.

16. Intercept Operating Procedure

The basic operating procedures for either search or intercept are similar. Proceed as follows:

a. Perform the starting procedure as described in paragraph 15.

b. Rotate the TUNING control to tune in a desired frequency (intercept mode) or to search a particular frequency sector (search mode). When visual (meter) or aural (headset) indication of a received signal is obtained, determine the type of signal modulation by slowly rotating the OPERATE switch through the FM, AM, and CW positions. For cw reception, detune the TUNING control slightly so that a pleasing audio tone is obtained.

(1) In am. or cw operation, there should be no meter deflection when a signal is received. If the meter pointer is deflected, turn the RF GAIN control counterclockwise until the meter indication drops to zero; then readjust the AF GAIN control for best reception.

(2) For fm reception, turn the RF GAIN control to maximum clockwise position; then readjust the AF GAIN control for best reception. The meter will deflect during fm reception.

c. Lock the MEGACYCLES dial in place with the DIAL LOCK.

17. Direction-Finder Operating Procedure

When used as a radio direction finder, the receiver group operates with a loop-type direction-finder antenna. Complete instructions for the operation of this antenna are furnished with the antenna equipment. To operate the radio receiver as a direction finder, proceed as follows:

a. Set the antenna selector switch to ANT.

b. Tune the receiver to the incoming signal as described in paragraph 16.

c. Switch the antenna selector switch to DF ANT. If necessary, readjust the RF and AF GAIN controls (para 16*b*).

d. Position the antenna so that the 0° mark of the azimuth scale is in line with true north.

e. Rotate the antenna loop for minimum audio signal (null) in the headset or for a decrease in meter deflection. Since the null may be broad, it may be necessary to rotate the antenna loop back and forth through the null position to find its center. In such cases, the actual null is assumed to fall in the center of the null sector.

f. Read the direction of the detected transmitter from the azimuth indicator on the loop antenna.

18. Stopping Procedure

To stop the equipment, turn the POWER switch to OFF. Keep the POWER switch in the OFF position during nonoperating periods to avoid unnecessary battery drain.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

19. Scope of Operator's Maintenance

a. The following is a list of maintenance duties normally performed by the operator. No special tools or test equipment are required.

b. Operator's maintenance for the receiver group consists of the following:

(1) Preventive maintenance (para 20).
(2) Visual inspection (para 21).
(3) Operational check (para 22).
(4) Replacement of defective dial lamp (para 23*a*).
(5) Replacement of internal A- and B-batteries (para 23*b*).
(6) Replacement of defective fuse (para 23*c*).

20. Preventive Maintenance

a. DA Form 11–238. DA Form 11–238 (fig. 5) is a preventive maintenance checklist to be used by the operator. Items not applicable to the receiver group are lined out. References to the ITEM block in the figures are to paragraphs that contain additional information pertinent to the particular item. Follow the instructions on the form.

b. Items. The information shown below is supplementary to DA Form 11–238. The item numbers correspond to the ITEM numbers on the form.

Item	Maintenance procedures
2	Use a clean cloth to remove dust, dirt, moisture, and grease from the exterior of the receiver, the headset, the mounting base, and the spare parts kit. If necessary, wet the cloth with Cleaning Compound (Federal stock No. 7930–395–9542) and then wipe the parts with a dry clean cloth. Clean the canvas field packs with a brush or a cloth that has been moistened with cleaning compound.
3	All control knobs should work smoothly, be tight on the shaft, and should not bind. Tighten all loose knobs and be sure that the knobs do not rub against the panel.
7	Repair any cuts in the external cable insulation by covering them with rubber tape and then with friction tape. Replace or repair broken cables.
11	Clean the MEGACYCLES dial window and the meter window.

Warning: **Cleaning compound is flammable and its fumes are toxic. Do not use near a flame; provide adequate ventilation.**

21. Visual Inspection

a. When the equipment fails to perform properly, turn off the power and check all the items listed below. *Do not check any item with the power on.*

(1) Improper settings of switches and controls (para 13).
(2) Improper connection of power cable (if used), headset cord, or antenna lead-in cables (para 15*a* and fig. 4).
(3) Disconnected cables, plugs, or headset cord.
(4) Burned-out fuse (usually indicates some other fault).
(5) Low battery voltage.

b. If the above checks do not locate the trouble, proceed to the operational checklist (para 22).

22. Operational Checklist

a. General. The operational checklist will help the operator to locate the trouble quickly. The corrective measures are used to repair this trouble. If the measures suggested do not restore normal performance, troubleshooting is required by a higher echelon. Note on the repair tag what corrective measures were taken and how the equipment performed at the time of failure.

b. Procedure. To check the operation of the equipment, perform the steps shown in the operational checklist below, in the order given. Do not proceed with later steps until an abnormal condition is corrected. Steps 1 through 3 check the filament and plate voltages supplied by the internal A- and B-batteries. Omit steps 1 through 3 only if the equipment is used in a vehicular installation and if these

LEGEND for marking conditions:
Satisfactory, ✓.
Adjustment, Repair or Replacement required, X.
Defect corrected, (X).

DAILY CONDITION FOR MONTH OF DECEMBER

NO.	DAILY ITEM	1 FL 17	2 FL 18	3 FL 19	4 FL 20	5 FL 21	6 FL 22	7 FL 23	8 FL 24	9 25	10 26	11 27	12 28	13 29	14 30	15 31	16	* 2D 3D ECHELON
1.	COMPLETENESS AND GENERAL CONDITION OF EQUIPMENT. (~~Transmitter~~, receiver, carrying cases, wire, cables, ~~microphones~~, tubes, spare parts, technical manuals).	✓	✓	✓	✓	✓	✓	✓	✓									
2.	CLEAN DIRT AND MOISTURE FROM ANTENNA, ~~MICRO-PHONES~~, HEADSETS, ~~KEYS~~, JACKS, PLUGS, COMPONENT PANELS. PARA 20 b	⊗	✓	✓	✓	✓	✓	✓	✓									
3.	INSPECT CONTROLS FOR NORMAL OPERATION. TAP CONTROLS LIGHTLY FOR EVIDENCE OF CUT-OUT FROM LOOSE CONTACTS. PARA 20 b	✓	✓	✓	✓	✓	✓	✓	✓									
4.	CHECK FOR NORMAL OPERATION OF EQUIPMENT. BE ALERT FOR UNUSUAL OPERATION OR CONDITION.	✓	✓	✓	✓	✓	✓	✓	✓									

WEEKLY	CONDITION EACH WEEK 1ST	2D	3D	4TH	5TH	2D 3D ECH
5. CLEAN AND TIGHTEN EXTERIORS OF CASES, ~~RACKS~~, MOUNTS, TRANSMISSION LINES.	✓					
6. INSPECT CASES, MOUNTS, ANTENNA ~~TOWERS~~ AND EXPOSED METAL SURFACES FOR RUST, CORROSION.	✓					
7. INSPECT CORDS, CABLE, WIRE, SHOCK MOUNTS FOR CUTS, KINKS, BREAKS, FRAYING, UNDUE STRAIN. PARA 20 b	✓					
8. ~~CHECK ANTENNA GUY WIRES FOR PROPER TENSION OR DAMAGE.~~						
9. INSPECT CANVAS AND LEATHER ITEMS FOR MILDEW, TEARS, FRAYING.	✓					
10. INSPECT ACCESSIBLE ITEMS FOR LOOSENESS: SWITCHES, KNOBS, JACKS, CONNECTORS, RELAYS, TRANSFORMERS, ~~MOTORS~~, PILOT LIGHTS, ~~BLOWERS~~, ETC.	⊗					
11. CLEAN AND/OR INSPECT ~~AIR FILTERS~~, BRASS NAME PLATES, DIAL AND METER WINDOWS. PARA 20B	✓					
12. INSPECT ~~STORAGE~~ BATTERIES FOR DIRT, LOOSE TERMINALS, ~~SPECIFIC GRAVITY~~, DAMAGED CASES. INSPECT DRY BATTERIES FOR LEAKAGE.	✓					

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS	CONDITION
13. ~~INSPECT SHELTERS AND COVERS FOR ADEQUACY OF WEATHERPROOFING, TEARS, FRAYING.~~	
14. ~~CHECK TERMINAL BOX COVERS FOR CRACKS, DIRT, LEAKS, DAMAGED GASKETS, GREASE.~~	

ADDITIONAL ITEMS FOR 2D AND 3D ECHELON INSPECTIONS	CONDITION
15. ~~INSPECT SEATING OF READILY ACCESSIBLE PLUG-OUT ITEMS: TUBES, LAMPS, FUSES, CRYSTALS, CONNECTORS, VIBRATORS, PLUG-IN COILS.~~	
16. ~~INSPECT RELAYS AND CIRCUIT BREAKERS FOR LOOSE MOUNTINGS, BAD CONTACTS, MIS-ALINEMENT OF CONTACTS AND SPRINGS, PROPER SPRING TENSION.~~	
17. ~~INSPECT VARIABLE CAPACITORS FOR DIRT, MIS-ALINEMENT OF PLATES, LOOSE MOUNTINGS, MOISTURE.~~	
18. ~~INSPECT RESISTORS, BUSHINGS AND INSULATORS FOR CRACKS, CHIPPING, BLISTERING, MOISTURE, DISCOLORATION.~~	
19. ~~CLEAN AND TIGHTEN SWITCHES, TERMINAL BLOCKS, BLOWERS, RELAY CASES AND INTERIORS OF CHASSIS AND CABINETS NOT READILY ACCESSIBLE.~~	
20. ~~INSPECT TERMINAL BLOCKS FOR LOOSE CONNECTIONS, CRACKS AND BREAKS.~~	
21. ~~INSPECT TERMINALS OF LARGE FIXED CAPACITORS AND RESISTORS FOR DIRT, CORROSION, LOOSE CONTACTS.~~	
22. ~~INSPECT TRANSFORMERS, CHOKES, POTENTIOMETERS AND RHEOSTATS FOR OVERHEATING AND OIL LEAKAGE.~~	
23. ~~INSPECT GENERATORS, AMPLIDYNES, DYNAMOTORS FOR BRUSH WEAR, SPRING TENSION, ARCING AND FITTING OF COMMUTATOR.~~	
24. ~~INSPECT CATHODE-RAY TUBES FOR BURNT SCREEN SPOTS.~~	
25. ~~INSPECT WATERPROOF GASKETS FOR LEAKS, WORN OR LOOSE PARTS.~~	

CONTINUED ON PAGE 4

2 3

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Figure 5. DA Form 11–238, pages 2 and 3.

batteries are not installed in the receiver. Steps 4 through 6 check the filament and plate supply voltages provided by the power supply when the receiver is operating in a mobile installation with a vehicular storage battery. If the equipment is operating in a portable installation, omit steps 4 through 6.

c. Operational Checklist.

Step	Action	Normal indication	Corrective measures
1	Turn POWER switch to BATT.		
2	Turn METER switch to 1.5V and hold in position.	Meter reads in A GOOD sector.	Check A-battery cable (para 23*b* and fig. 6). Replace A-battery.
3	Turn METER switch to 45V and hold in position.	Meter reads in B GOOD sector.	Check B-battery cable (para 23*b*). Replace B-battery.
4	Turn POWER switch to VEH.		
5	Turn METER switch to 1.5V and hold in position.	Meter reads in A GOOD sector.	Check fuse (para 23*c*). Check connection of the power cable (fig. 4). Check vehicular storage battery.
6	Turn METER switch to 45V and hold in position.	Meter reads in B GOOD sector.	Higher echelon repair required.
7	Turn LITE DIM control to the right.	Dial is illuminated.....	Replace dial lamp (para 23*a*).
8	Turn OPERATE switch to CAL, unlock DIAL LOCK, and rotate TUNING control throughout frequency range; check all calibration checkpoints.	Tone is heard in headset and meter deflects at each checkpoint.	Check settings of RF GAIN and AF GAIN controls (para 15*c*). Higher echelon repair required.
9	Turn antenna selector switch to ANT, OPERATE switch to FM, and RF GAIN control to maximum clockwise position. Rotate TUNING control for reception of known fm signal.	Signal heard in headset.....	Check settings of RF GAIN and AF GAIN controls. Check antenna and antenna connection to ANT connector. Higher echelon repair required.
10	Turn OPERATE switch to AM. Rotate TUNING control for reception of known am. signal.	Signal heard in headset.....	Check settings of RF GAIN and AF GAIN controls (para 15*d*). Higher echelon repair required.
11	Turn OPERATE switch to CW. Tune to known cw signal.	Signal heard in headset.....	Higher echelon repair required.

23. Repairs and Adjustments

a. Replacement of Dial Light.

(1) Remove the thumbscrew cap from the dial lamp cover (fig. 3).

(2) Tilt the receiver forward; place a hand under the light receptacle to catch the dial lamp as it falls out.

(3) If the dial lamp sticks in the receptacle, remove the two screws that hold the dial lamp socket cover. Remove the cover.

(4) Remove a dial lamp from the spare parts kit and insert it into the socket, bulb end first.

(5) Replace the dial lamp cover (if previously removed) and the thumbscrew cap.

b. Replacement of A- and B-Batteries. The A-battery, BA–403/U, and the B-battery, BA–418/U, are housed in two individual compartments located at the ends of the cover assembly (fig. 3). Access to each battery compartment is provided by the battery access panel which is retained by thumb-locked, latch-type fasteners. A cable and plug within each battery compartment provide convenient connection to the corresponding battery. When no batteries are in the compartments, each battery plug is fastened to a plug storage receptacle located inside each battery access panel (fig. 6). To replace the batteries, proceed as follows:

(1) Remove the two access panels by loosening the two thumb-locked fasteners on each panel.

(2) The A-battery is installed in the right end compartment (fig. 6) with the battery receptacle facing right. Remove plug P302 from the battery receptacle, and then withdraw the battery by pulling the pullout strap.

(3) Place the replacement A-battery in the right end compartment, with the receptacle facing outward. Connect plug P302 to this receptacle.

(4) The B-battery is installed in the left rear compartment with the battery receptacle facing left and connected to plug P304. Replace this battery in the same manner as described in (3) above for the A-battery.

(5) Replace the access panels and lock the two fasteners on each panel.

c. Replacement of Defective Fuse.

(1) Loosen the six panel mounting screws on the receiver front panel (fig. 3).

(2) Withdraw the receiver from the cover assembly to expose the power supply (fig. 7).

(3) Remove the fuseholder cap, located on the cover of the power supply.

(4) Remove fuse F301 from the fuseholder and replace it with a spare fuse.

***Caution*: Use only a ¼-ampere, MIL-type F02GR250A fuse. The equipment may become damaged by the use of an improper fuse.**

(5) Replace the fuse cap.

(6) Slide the receiver into the cover assembly and tighten the six panel-mounting screws on the front panel.

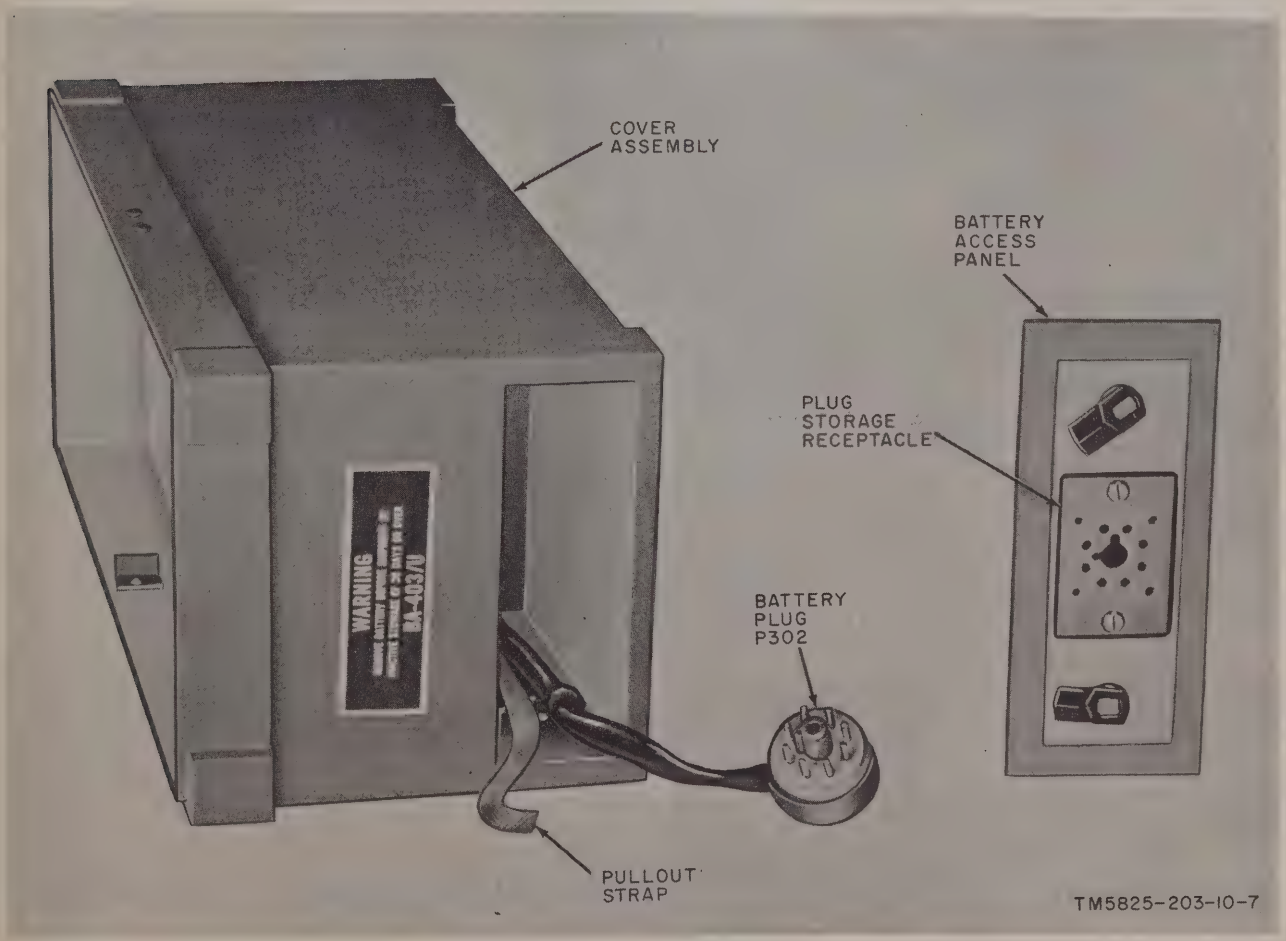

Figure 6. Battery compartment, exposed.

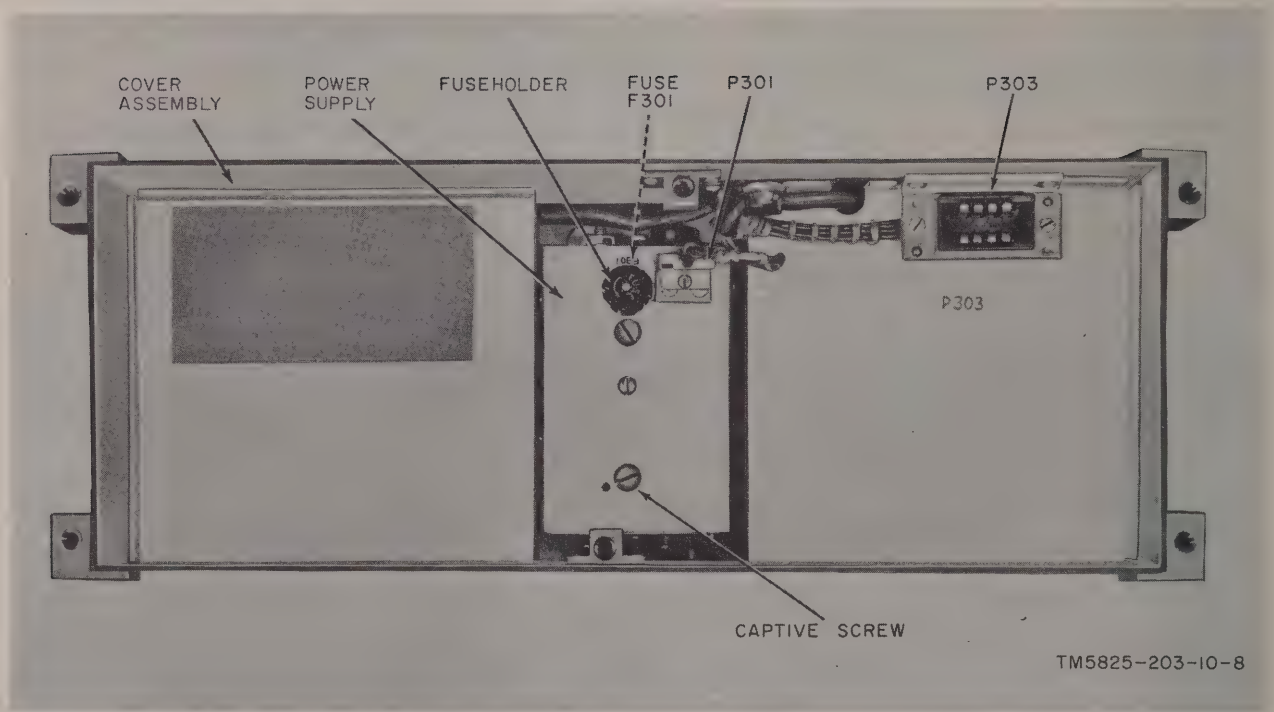

Figure 7. Power Supply PP–1481/PRR, mounted in cover assembly.

TECHNICAL MANUAL

Operator's Manual

RECEIVER GROUP OA–1451/PRR

TM 11–5825–203–10
CHANGES No. 2

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., *16 April 1962*

TM 11–5825–203–10, 9 January 1961, is changed as follows:

Page 2, figure 1. (As changed by C 1, 21 Aug 61) Change "CW–478/PRR" to CW–58/PRR.

Page 3, paragraph 2. (As added by C 1, 21 Aug 61) Add subparagraph *c.* 1 after subparagraph *c.*

c. 1. *Parts List Form.* Forward DA Form 2028 (Recommended changes to DA Technical Manual Parts Lists or Supply Manual 7, 8, or 9) direct to the Commanding Officer, U.S. Army Signal Materiel Support Agency, ATTN: SIGMS–ML, Fort Monmouth, N.J., for comments on parts listings in appendix II.

Page 8, paragraph 15*c,* line 2. (As deleted by C 1, 21 Aug 61) Delete "then proceed".

Page 16, heading. (As changed by C 1, 21 Aug 61) Change APPENDIX to: APPENDIX I.

Page 16. Designate the first paragraph as paragraph 1, and add paragraph 2.

2. A maintenance allocation chart is contained in TM 11–5825–203–20.

Add appendix II after appendix I.

APPENDIX II (Superseded)

BASIC ISSUE ITEMS RECEIVER GROUP OA–1451(XE–3)/PRR AND OA–1451/PRR

Section I. INTRODUCTION

1. Scope

a. This appendix lists items supplied for initial operation and for running spares. The list includes tools, accessories, parts, and material issued as part of the major end item. The list includes all items authorized for basic operator maintenance of the equipment. End items of equipment are issued on the basis of allowances prescribed in equipment authorization tables and other documents that are a basis for requisitioning.

b. Columns are as follows:

(1) *Source, maintenance and recoverability code.* Not used.
(2) *Federal stock number.* This column lists the 11-digit Federal stock number.
(3) *Designation of model.* The dagger (†) indicates equipment in which the part is used.
(4) *Description.* Nomenclature or the standard item name and brief identifying data for each item are listed in this column. When requisitioning, enter the nomenclature and description.

*These changes supersede C 1, 21 August 1961.

(5) *Unit of issue.* The unit of issue is each unless otherwise indicated and is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowance, and issue purposes.

(6) *Expendability.* Nonexpendable items are indicated by NX. Expendable items are not annotated.

(7) *Quantity authorized.* Under "items comprising an operable equipment", the column lists the quantity of item supplied for the initial operation of the equipment. Under "Running Spares and Accessory Items", the quantities listed are those issued initially with the equipment as spare parts. The quantities are authorized to be kept on hand by the operator for maintenance of the equipment.

(8) *Illustration.* The "Item No." column lists the reference designations that appear on the part in the equipment. These same designations are also used on any illustrations of the equipment. The numbers in the "Figure No." column refer to the illustrations where the part is shown.

SECTION II FUNCTIONAL PARTS LIST

(1) SOURCE MAINTENANCE AND RECOVERABILITY CODE	(2) FEDERAL STOCK NUMBER	(3) DESIGNATION BY MODEL		(4) DESCRIPTION	(5) UNIT OF ISSUE	(6) EXPENDABILITY	(7) QUANTITY AUTHORIZED	(8) ILLUSTRATIONS	
								FIGURE NO	(9) ITEM NO
		1	2	ITEMS COMPRISING AN OPERABLE EQUIPMENT					
				RECEIVER GROUP OA-1451(XE-3) PRR AND RECEIVER GROUP OA-1451 PRR					
				NOTE: Model Column 1 refers to OA-1451(XE-3) PRR; Column 2 refers to OA-1451 PRR.					
	Ord thru AGC			TECHNICAL MANUAL TM 11-5825-203-10			2		
	5825-543-1513			RECEIVER GROUP OA-1451(XE-3) PRR AND RECEIVER GROUP OA-1451 PRR		NX		1	
	5995-583-9878	†		CABLE ASSEMBLY, POWER, ELECTRICAL CX-4377(XE-3)/U: (8 ft 5 in)			1	1	1
	5825-583-0768	†		MAINTENANCE KIT, ELECTRONIC EQUIPMENT		NX	1	2	
	5820-625-2573	†		FIELD PACK, CANVAS CW-457(XE-3) PRR			1	1	2
	5820-625-2572	†		FIELD PACK, CANVAS CW-458(XE-3) PRR			1	1	3
	5820-448-6756	†		MOUNTING MT-1988(XE-3) PRR			1	1	4
	5825-577-3352	†		POWER SUPPLY PP-1181(XE-3) PRR		NX	1	1	5
	5825-543-1514	†		RADIO RECEIVER R-744(XE-3) PRR		NX	1	1	6
	5820-448-6762		†	ACCESSORIES GROUP OA-3088 PRR		NX	1	2	
	5820-752-5904		†	RECEIVER GROUP OA-3087 PRR		NX	1	1	
				ACCESSORIES GROUP OA-3088 PRR					
	5820-625-2572			FIELD PACK, CANVAS CW-458 PRR			1	1	3
	5995-583-9878			CABLE ASSEMBLY, POWER, ELECTRICAL CX-4377 U (8 ft 5 in)			1	1	1
	5820-448-6756			MOUNTING MT-1988 PRR			1	1	4
	5825-583-0768			MAINTENANCE KIT, ELECTRONIC EQUIPMENT		NX	1	2	
				RECEIVER GROUP OA-3087 PRR					
	5820-625-2573			FIELD PACK, CANVAS CW-457 PRR			1	1	2
	5825-543-1514			RECEIVER, RADIO R-711 PRR		NX	1	1	6
	5825-577-3352			POWER SUPPLY PP-1481 PRR		NX	1	1	5

(1) SOURCE MAINTENANCE AND RECOVERABILITY CODE	(2) FEDERAL STOCK NUMBER	(3) DESIGNATION BY MODEL	(4) DESCRIPTION	(5) UNIT OF ISSUE	(6) EXPENDABILITY	(7) QUANTITY AUTHORIZED	(8) ILLUSTRATIONS FIGURE NO	(9) ILLUSTRATIONS ITEM NO
			OA-1451(XE-3) PRR and OA-1451 PRR (continued)					
			RUNNING SPARES AND ACCESSORY ITEMS					
			RECEIVER GROUP OA-1451(XE-3) PRR AND RECEIVER GROUP OA-1451 PRR					
			MAINTENANCE KIT, ELECTRONIC EQUIPMENT					
	5820-615-5693		CASE ACCESSORIES CY-2331/PRR: P. R. Mallory dwg Nos. 62-50086 and 62-50083			1	2	15
	5995-617-1564		CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: test cable; P.R. Mallory dwg No. 61-50188			1	2	1
	5820-539-7842		AMPLIFIER-DETECTOR: P.R. Mallory dwg No. 63-50060			1	2	2
	5820-539-7838		AMPLIFIER, AUDIO FREQUENCY: P.R. Mallory dwg No. 63-50056			1	2	3
	5820-539-7856		AMPLIFIER, INTERMEDIATE FREQUENCY: P.R. Mallory dwg No. 63-50057			1	2	4
	6625-580-9577		CALIBRATOR, CRYSTAL: P.R. Mallory dwg No. 63-50059			1	2	5
	5820-539-7947		DETECTOR, RADIO FREQUENCY: P.R. Mallory dwg No. 63-50061			1	2	6
	5960-571-0419		ELECTRON TUBE: MIL type CK6611			1	2	7
	5960-519-9880		ELECTRON TUBE: MIL type CK6612			2	2	8
	5920-043-2641		FUSE, CARTRIDGE: 0.25 amp, MIL type F02GR250A			3	2	9
	5820-539-7972		OSCILLATOR, RADIO FREQUENCY: P.R. Mallory dwg No. 63-50058			1	2	10
	6240-228-7130		LAMP, INCANDESCENT: GE part No. 331			3	2	11
	5120-819-8681		SCREWDRIVER: MIL Spec type II Class 6, style No. A, MIL part No. MS-15222-1			1	2	12
	5960-615-0854		TRANSISTOR: MIL type 2N297			1	2	13
	5120-198-5401		WRENCH, SOCKET: Allen type No. 4 short			1	2	14
	5120-242-7410		WRENCH, SOCKET: Allen type No. 10 short			1	2	14
	5120-198-5398		WRENCH, SOCKET: Allen type No. 6 short			1	2	14

BY ORDER OF THE SECRETARY OF THE ARMY:

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NG: State AG (3); units—same as active army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320–50.

CHAPTER 4

DEMOLITION TO PREVENT ENEMY USE

24. Authority for Demolition

Demolition of the equipment will be accomplished only upon the order of the commander. The destruction procedures outlined in paragraph 25 will be used to prevent further use of the equipment.

25. Methods of Destruction

Any or all of the methods of destruction given below may be used. The time available will be the major determining factor for the methods to be used. The tactical situation also will determine in what manner the destruction order will be carried out.

a. Smash. Smash the tuning indicator, controls, meter, and the connectors with the heaviest tool at hand if time does not permit removal of the receiver from the cover assembly; use sledges, axes, hammers, crowbars, and any other heavy tools available to smash the interior of the set.

b. Cut. Cut all cords and cables in a number of places; use axes, machetes, and similar tools to cut cabling, cording, and wiring. If time permits, slash the interior wiring and cabling.

c. Burn. Burn instruction literature first. Burn as much of the equipment as is flammable; use gasoline, oil, flamethrower, or similar tools. Pour gasoline on the cut cables and internal wiring and ignite it; use a flamethrower to burn the spare parts or pour gasoline on the spare parts and ignite it; use incendiary grenades to complete the destruction of the equipment interiors.

Warning: **Be extremely careful with explosives and incendiary devices. Use these items only when the need is urgent.**

d. Explode. Use explosives to complete demolition or to cause maximum destruction when time does not permit complete demolition by other means. Powder charges or fragmentation grenades may be used. Incendiary grenades usually are most effective if destruction of small parts is desired.

e. Dispose. Bury or scatter the destroyed parts in slit trenches or foxholes, or throw them into streams.

APPENDIX

REFERENCES

Following is a list of applicable references that are available to the operator of Receiver Group OA–1451/PRR:

DA Pam 108–1	Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings.
DA Pam 310–4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
FM 21–5	Military Training.
FM 21–6	Techniques of Military Instruction.
FM 21–30	Military Symbols.
SR 320–5	Dictionary of United States Army Terms.
SR 320–50	Authorized Abbreviations and Brevity Codes.

By Order of *Wilber M. Brucker,* Secretary of the Army:

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Chief of Staff.

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